TNV-CR Diagnosis and Falesafe List for Tier4/IT4 (Under 56kW V191R46V01)

			Application model	Failure decision			Sensor default	Falesafe acti	ion														Fault code				Lamp informatio
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration	value	r diesdie dui												Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI	MIL RSL AV
								jine Stop ation Limit (1800 min ⁻¹)	ation Limit (1500 min ⁻¹)	x. Injection Amount Limit %) x. Injection Amount Limit	%) I Pressure Limit	R Command Full-Close stion Air Throttle Full-Ope	I Pressure Back-up	F Regeneration Stop posit Amount culation Stop	pending on DPF jine stop 1 h delay time (2 hour)	jine stop 2 h delay time (15 utes)	ure bank injection stop	ure cylinder injection				Recovery					
Sensor	Crank	Abnormal signal		Under 56kW	Under 56kW ECU detects abnormal signal of 15 times		Under 56kW	Eng Rot	Rot	(75 (75 Ma)	Rai Rai	Suc Suc	Coai		Wit Der Wit	mi tit Bug	Fail	Fail stop	ECU keeps	Under 56kW ECU Power OFF	Under 56kW ECU detects normal signal of 15 times	duration		(HEX)	(DEC)	(DEC)	44
			х	-		-	-		x	x									engine operation by only cam sensor.			-	P0336	1F	522400	2	x x
Sensor	Crank	No signal	x	-	ECU does not detect crank pulse signal while cam make 10 rotations	-	-		x	x									ECU keeps engine operation by only cam sensor.	ECU Power OFF	ECU detects crank pulse signal while cam make 10 rotations	-	P0337	18	522400	5	x
Sensor	Cam	Abnormal signal	x	-	ECU detects abnormal cam signal pattern while crank make 2 rotations.	-	-	x		x									ECU keeps engine operation by only crank sensor.	ECU Power OFF	ECU detects normal cam signal pattern while crank make 2 rotations.	-	P0341	1F	522401	2	x x
Sensor	Cam	No signal	x	-	ECU does not detect cam pulse signal while crank make 2.2 rotations	-	-	x		x									ECU keeps engine operation by only crank	ECU Power OFF	ECU detects cam pulse signal while crank make 2.2 rotations	-	P0342	18	522401	5	x x
Sensor	Cam	Angle off-set fault			The phase difference with crank is more than 30 degrees.														sensor.	ECU Power OFF	The phase difference with crank is less than 30 degrees.						+
Sapaar	Acceleration	Voltage bigh	×	-	ECU detects the condition that the phase difference is less than -20 degrees of 2 times. Voltage of sensor signal is more than 4.6		-	×		x									Fail asfa action	ECU Power OFF	ECU detects the condition that the phase difference is more than -20 degrees of 2 times.	-	P1341	71	522401	7	× ×
	sensor 1	Voltage high	x	-	v				(Selecta (S ble)	electa ble)									Fail safe action is applied to application menu.		Voltage of sensor signal is less than 4.6 V	-	P0123	15	91	3	x x
	Acceleration sensor 1	Voltage low	x	-	Voltage of sensor signal is less than 0.2 V	500[ms]			(Selecta (S ble)	electa ble)									Fail safe action is applied to application menu.	ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P0122	14	91	4	x
Sensor	Suction air throttle opening sensor	Voltage high	х	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation				x		x		x x		x	x					ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P02E9	15	51	3	x x
	Suction air throttle opening sensor		x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation				x		x		x x		x	x					ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P02E8	14	51	4	x x
	EGR low-pressure side sensor (Suction air pressure)		x	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 				x		x		x		x		x				ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P0238	15	102	3	x >
	EGR low-pressure side sensor (Suction air pressure)	Ĵ	x	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 				x		x		x		x		x				ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P0237	14	102	4	x
	EGR high- pressure side sensor (exhaust gas pressure sensor)	Voltage high	x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation	Voltage of sensor signal is more than 4.8 V	500[ms]	U[nPa]	x		x		x x		x x		x				ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P0473	15	1209	3	x x
	EGR high- pressure side sensor (exhaust gas pressure sensor)	Voltage low	x	- ECU does not control starter - Sensor supply voltage is normal range - AD converter is normal operation	Voltage of sensor signal is less than 0.2 V	500[ms]	0[hPa]	x		x		x x		x x		x				ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P0472	14	1209	4	x x
Sensor		Voltage high	×	- ECU does not control starter - Sensor supply voltage is normal range - AD converter is normal operation	Voltage of sensor signal is more than 4.8 V		After cranking : 50[degC] On cranking :- 15[degC]	x		x		x								ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P0118	15	110	3	x ,
	Water temperature sensor	Voltage low	x	- ECU does not control starter - Sensor supply voltage is normal range - AD converter is normal operation	Voltage of sensor signal is less than 0.2 V		After cranking: 50[degC] On cranking:- 15[degC]	x	+	x		x								ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P0117	14	110	4	x x
Sensor	Water temperature sensor	Water temperature increase (overheat)		- Water temperature sensor is normal operation (No failure detection) - After 60 seconds from when engine cranking has been completed successful	Temperature is more than the threshold (threshold:110 degC)	20[s]	-	(Sele ctabl e) (Selec	cta (Selecta (S	electa (Sele ble) ble		x			(Selectat	l (Selectab e)	4		Fail safe action is applied to application menu.	- When recovery condition consists or - ECU Power OFF	Temperature is more than the threshold (threshold:95 degC)	60[s]	P0217	16	110	0	(Sele (Se ctabl ctabl e))
Sensor	New air temperature sensor	Voltage high	x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation	Voltage of sensor signal is more than	500[ms]	25 [deg C]	x		x										ECU Power OFF	Voltage of sensor signal is less than 4.85 V	-	P0113	15	105	3	x x
	New air temperature sensor	Voltage low	x	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 	Voltage of sensor signal is less than 0.15 V	500[ms]	25 [deg C]	x		x							1			ECU Power OFF	Voltage of sensor signal is more than 0.15 V	-	P0112	14	105	4	x x
	Fuel temperature sensor		x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation			temperature is substituted.			x										ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P0183	15	174	3	x
	Fuel temperature sensor Fuel temperature	Voltage low High temperature	x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation Fuel temperature sensor is normal	Voltage of sensor signal is less than 0.2 V Engine is running		Water temperature is substituted.			x									Fail safe action	ECU Power OFF - When recovery condition consists	Voltage of sensor signal is more than 0.2 V Fuel temperature is below the threshold	- 60[s]	P0182	14	174	4	x
	sensor		x	operation (No failure detection)	and Fuel temperature is more than the threshold (threshold:90 degC)		-	(Sele ctabl e) (Selec ble)		ielecta (Sele ble) ble					(Selectat e)	e) (Selectab	1		is applied to application menu.	or - ECU Power OFF	(threshold:80 degC)	22[2]	P0168	16	174	0	X (Sele (Se ctabl ctabl e))
	Rail pressure sensor	Voltage high	х	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 	Voltage of sensor signal is more than 4.75 V	200[ms]		x	x	x	x	x								ECU Power OFF	Voltage of sensor signal is less than 4.75 V	-	P0193	15	157	3	x x

			Application model	Failure decision			Sensor default value	Falesafe a	action															Fault code				Lamp infor	rmation
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration	1			+	-		Ű	,							Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI		AWL
				Under 56kW	Under 56kW		Under 56kW	Engine Stop	Rotation Limit (1800 min ⁻¹) Rotation Limit (1500 min ⁻¹)	Max. Injection Amount Limi 75%)	/ax. Injection Amount Limi 50%)	ail Pressure Limit	Suction Air Throttle Full-Op	addit Pressure Back-up	DPF Regeneration Stop	Deposit Amount Calculation Stop Depending on DPF	Engine stop 1 with delay time (2 hour)	Engine stop 2 with delay time (15 ninutes)	ailure bank injection stop	ailure cylinder injection top tote	Under 56kW	Under 56kW	Recovery		(HEX)	(DEC)	(DEC)		
	pressure sor	Voltage low	×	- ECU does not control starter - Sensor supply voltage is normal range	Voltage of sensor signal is less than 0.24	200[ms]		x		x	20	x x	4 0) 4					<u> </u>			ECU Power OFF	Voltage of sensor signal is more than 0.24 V	duration	P0192	14	(DEC) 157	(DEC) 4		
pre	⁻ differential ssure sor	Voltage high	x	AD converter is normal operation ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation	Voltage of sensor signal is more than 4.8 V	500[ms]	0[hPa]		x	x		>	ĸ		x	x		x			 ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P2455	15	3251	3	x x	
Sensor DP pre		Voltage low	x	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation	Voltage of sensor signal is less than 0.2 V	500[ms]	0[hPa]		x	x		,	ĸ		x	x		x			 ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P2454	14	3251	4	x x	
pre	F high- ssure side sor	Voltage high	x	- ECU does not control starter - Sensor supply voltage is normal range - AD converter is normal operation	Voltage of sensor signal is more than 4.8 V	1.0[s]	0[hPa]		x	x		,	ĸ		x			x			ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P1455	15	3609	3	x x	
pre	⁻ high- ssure side sor	Voltage low	x	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 	Voltage of sensor signal is less than 0.2 V	1.0[s]	0[hPa]		x	x		,	ĸ		x			x			ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P1454	14	3609	4	x x	
terr	⁻ inlet perature sor	Voltage high	x	 ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation 					x	x		>	x x		x			х			ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P1428	15	3242	3	x x	
terr sen	inlet perature sor	Voltage low	×	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation					x	x		>	x x		x			x			ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P1427	14	3242	4	x x	
terr sen	 intermediate perature sor intermediate 		×	ECU does not control starter Sensor supply voltage is normal range AD converter is normal operation ECU does not control starter	Voltage of sensor signal is more than 4.8 V Voltage of sensor signal is less than 0.2				x	x		>	x x	:	x			x			ECU Power OFF	Voltage of sensor signal is less than 4.8 V Voltage of sensor signal is more than 0.2	-	P1434	15	3250	3	x x	
terr	perature sor ospheric	Voltage high	x	Sensor supply voltage is normal range AD converter is normal operation ECU does not control starter	V Voltage of sensor signal is more than 4.8				x	x		>	x x	:	x			x			ECU Power OFF	V Voltage of sensor signal is less than 4.8 V	-	P1435	14	3250	4	x x	
Sensor Atm	ospheric	Voltage low	x	- Sensor supply voltage is normal range - AD converter is normal operation - ECU does not control starter	Voltage of sensor signal is less than 0.2	500[ms]	900[hPa]		x	x				_							ECU Power OFF	Voltage of sensor signal is more than 0.2	-	P2229	15	108	3	x	x
	ospheric	Abnormal	×	Sensor supply voltage is normal range AD converter is normal operation	Absolute value of final offset value of	100[ms]			x	х											ECU Power OFF	V ECU Power OFF	-	P2228	14	108	4	×	x
		atmospheric pressure	x	operation - EGR high-pressure side sensor is normal operation	Intake manifold pressure >= 5 kPa and - Absolute value of final offset value of exhaust manifold pressure >= 5 kPa *"intake manifold pressure" means "EGR low-pressure side" ""Exhaust manifold pressure" means "EGR high-pressure side"				x	x		>	ĸ										-	P1231	o	108	10	x	x
sen	perature sor	Voltage high	x	- ECU does not control starter	Voltage of sensor signal is more than 4.8 V				x	x		>	ĸ								ECU Power OFF	Voltage of sensor signal is less than 4.8 V	-	P041D	0	412	3	x	x
terr	R gas perature sor	Voltage low	x	- ECU does not control starter	Voltage of sensor signal is less than 0.2 V				x	x		>	×								ECU Power OFF	Voltage of sensor signal is more than 0.2 V	-	P041C	0	412	4	x	x
terr sen	ke air perature sor ke air	Voltage high Voltage low	x	ECU does not control starter ECU does not control starter	Voltage of sensor signal is more than 4.8 V Voltage of sensor signal is less than 0.2				x	x		>	x x	:	x	x		x			ECU Power OFF	Voltage of sensor signal is less than 4.8 V Voltage of sensor signal is more than 0.2	-	P040D	0	105	3	x x	
terr	perature sor aust	Voltage high	x	- ECU does not control starter	V V Voltage of sensor signal is more than 4.8				x	x		>	x x		x	x		x			ECU Power OFF	V V Voltage of sensor signal is less than 4.8 V	-	P040C	0	105	4	x x	
sen	perature sor aust	Voltage low	×	- ECU does not control starter	V Voltage of sensor signal is less than 0.2		-		x	x		>	×	_	_						ECU Power OFF	Voltage of sensor signal is more than 0.2	-	P0546	0	173	3	x	×
sen Digital Mai	perature sor n relay	Relay contact stuck			V Main relay is not opened after 150ms		-		×	x		>	×	_	_						ECU Power OFF	V Main relay is opened after 150ms from	-	P0545	0	173	4	×	×
Output Digital Mai Output		Power-off without self-hold	~		from when the ECU shutdown has been done ECU power-off without self-hold	-	-		X		x										ECU Power OFF	when the ECU shutdown has been done ECU power-off with self-hold	-	P068B	71	1485	7	×	x
		Disconnection	×	When ECU controls the relay OFF	Driver voltage that the ECU internal circuit detects is more than 3 V	-	-		×		x										 ECU Power OFF	Driver voltage that the ECU internal circuit detects is less than 3 V when ECU	-	P068A	1F 18	522243	2	×	x
	t assist relay	GND short-circuit	×		Driver voltage that the ECU internal circuit detects is less than 2.8 V	-	_		×		x		+	+	+						 ECU Power OFF	controls the relay OFF Driver voltage that the ECU internal circuit detects is less than 2.8 V when ECU	-	P0543 P0541	18 19	522243 522243	5	x	x
CRS Inje 4TN 3TN Por 4TN	ctor 1 IV : CyINo.4 IV : CyINo.3 :: IV : 1-2 IV : 1-3	Disconnection	x	(under confirmation)	Disconnection is detected by the drive circuit.	-	-		x	x	~	,	ĸ				x			x	ECU Power OFF	controls the relay ON Disconnection of low side or high side are not detected by the drive circuit.	-	P0204(4TN V) P0203(3TN V)	18	651(4TNV) 652(3TNV)	5	x x	
4Th 3Th Por 4Th	ctor 1 IV : CyINo.4 IV : CyINo.3 :: IV : 1-2 IV : 1-3	Short circuit (inner coil)	x	(under confirmation)	Layer short-circuit in injector coil	-	-		x	x		>	ĸ				x			x	ECU Power OFF	Layer short-circuit in injector coil does not occur	-	P0271(4TN V) P0268(3TN V)	19	651(4TNV) 652(3TNV)	6	x x	

			Application model	Failure decision			Sensor default	alesafe action																Fault code				Lamp ir	formation
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration					_										Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI		RSL AWL
								ngine Stop otation Limit (1800 min ⁻¹)	otation Limit (1500 min ⁻¹)	ax. Injection Amount Limit 5%)	ax. injection Amount Linii 0%) ail Pressure Limit	GR Command Full-Close	uction Air Throttle Full-Op	all Pressure Back-up ontrol PF Regeneration Stop	eposit Amount alculation Stop	epending on DPF ngine stop 1 vith delay time (2 hour)	ngine stop 2 vith delav time (15	s) (s)	ailure bank injection stop ailure cylinder injection	de je			Recovery						
CRS I	njector 1 4TNV : CylNo.4	Short circuit		Under 56kW (under confirmation)	Under 56kW VB short-circuit of low side is detected by the drive circuit.		Under 56kW	<u>m</u> æ	Ř.		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ш	σ i			<u>ă ū ×</u>	≦ <u>ū</u> ≤	E ù	Ë Ë	ti Z	Under 56kW ECU Power OFF	Under 56kW VB short-circuit of low side is not detected	duration	P1271(4TN	(HEX)	(DEC)	(DEC)	+	
S F	3TNV : CylN0.4 3TNV : CylN0.3 Port : 4TNV : 1-2 3TNV : 1-3		x			-	-	x		x		x				x			×			by the drive circuit.	-	V) P1262(3TN V)	15	651(4TNV) 652(3TNV)	3	x	x
2 3	njector 1 4TNV : CylNo.4 3TNV : CylNo.3 Port : 4TNV : 1-2	Unclassified	x	(under confirmation)	Multiple failure related to injector	-	-	x		x		x				x			×		ECU Power OFF	Multiple failure related to injector does not occur	-	P1272(4TN V) P1263(4TN	00	651(4TNV) 652(3TNV)	11	x :	x
CRS I	3TNV : 1-3 njector 2 4TNV : CylNo.2 3TNV : CylNo.2	Disconnection		(under confirmation)	Disconnection is detected by the drive circuit.																ECU Power OFF	Disconnection of low side or high side are not detected by the drive circuit.		V)				++	_
F 2	Port : 4TNV : 2-1 3TNV : 1-2 njector 2	Short circuit (inner	x	(under confirmation)	Layer short-circuit in injector coil	-	-	x		x		×				X			×		ECU Power OFF	Layer short-circuit in injector coil does not	-	P0202	18	653	5	x :	x
2 3 F 2	4TNV : CyINo.2 3TNV : CyINo.2 Port : 4TNV : 2-1 3TNV : 1-2	coil)	х			-	-	x		x		x				x			×			occur	-	P0265	19	653	6	x	x
2 3 F 2	njector 2 4TNV : CylNo.2 3TNV : CylNo.2 Port : 4TNV : 2-1 3TNV : 1-2	Short circuit	x	(under confirmation)	VB short-circuit of low side is detected by the drive circuit.		-	x		x		x				x			x		ECU Power OFF	VB short-circuit of low side is not detected by the drive circuit.	-	P1265	15	653	3	x	x
CRS I	njector 2 4TNV : CylNo.2 3TNV : CylNo.2 Port : 4TNV : 2-1	Unclassified	x	(under confirmation)	Multiple failure related to injector	-	-	x		x		x				x			x		ECU Power OFF	Multiple failure related to injector does not occur	-	P1266	00	653	11	x :	x
CRS I	3TNV : 1-2 njector 3 4TNV : CylNo.1 3TNV : CylNo.1 Port : 4TNV : 2-2	Disconnection	x	(under confirmation)	Disconnection is detected by the drive circuit.	-	-	x		x		x				x			×		ECU Power OFF	Disconnection of low side or high side are not detected by the drive circuit.	-	P0201	18	654	5	x :	x
CRS I	+TNV : 2-2 3TNV : 1-1 njector 3 4TNV : CylNo.1 3TNV : CylNo.1 Port :	Short circuit (inner coil)	x	(under confirmation)	Layer short-circuit in injector coil	-	-	x		x		x				x			x		ECU Power OFF	Layer short-circuit in injector coil does not occur	_	P0262	19	654	6	x ::	x
CRS I	4TNV : 2-2 3TNV : 1-1 hjector 3 4TNV : CylNo.1 3TNV : CylNo.1	Short circuit		(under confirmation)	VB short-circuit of low side is detected by the drive circuit.																ECU Power OFF	VB short-circuit of low side is not detected by the drive circuit.						+	
CRS I	Port : 4TNV : 2-2 3TNV : 1-1 njector 3	Unclassified	x	(under confirmation)	Multiple failure related to injector	-	-	x		x		x				×			×		ECU Power OFF	Multiple failure related to injector does not	-	P1262	15	654	3	× :	<
57 F 4 53	4TNV : CyINo.1 3TNV : CyINo.1 Port : 4TNV : 2-2 3TNV : 1-1		x			-	-	x		x		x				x			x			occur	-	P1263	00	654	11	×	×
4 F 4	njector 4 4TNV : CylNo.3 Port : 4TNV : 1-1 njector 4	Disconnection Short circuit (inner	х	(under confirmation)	Disconnection is detected by the drive circuit.	-	-	x		x		x				x			×		ECU Power OFF	Disconnection of low side or high side are not detected by the drive circuit.	-	P0203	18	652	5	× :	×
Z F	4TNV : CylNo.3 Port : 4TNV : 1-1 njector 4		x	(under confirmation)	VB short-circuit of low side is detected by	-	-	x		x		x				x			×		ECU Power OFF	VB short-circuit of low side is not detected	-	P0268	19	652	6	x :	×
CRS I	4TNV : CylNo.3 Port : 4TNV : 1-1 njector 4	Unclassified	x	(under confirmation)	the drive circuit. Multiple failure related to injector	-	-	x		x		x				x		_	×		ECU Power OFF	by the drive circuit. Multiple failure related to injector does not	-	P1268	15	652	3	x :	x
CRS I	TNV : CylNo.3 Port : TNV : 1-1 njector driver	Injector driving IC	x		Driving IC fault detected	-	-	x		x		x				x			x		ECU Power OFF	occur Driver IC is normal operation	-	P1269	00	652	11	x :	×
		error Driving circuit (Bank 1) short-circuit (4TN: No. 1, 4 and 3TN : all cylinders common circuit)	x	- (under confirmation)	The following short-circuit is detected by the drive circuit - VB short-circuit of high side port or - GND short-circuit of high side port and	-	-	x		x		x				x			x		ECU Power OFF	The following short-circuit is not detected by the drive circuit - VB short-circuit of high side port or - GND short-circuit of high side port and	-	P0611 P1146	92	4257 2797	12 6	x x	x x
CRS I	njector (common)	Driving circuit (Bank 2) short-circuit (4TN: No. 2, 3 cylinder circuit)	x	(under confirmation)	low side port The following short-circuit is detected by the drive circuit - VB short-circuit of high side port or	-	-	x		x		x				x		,	x		ECU Power OFF	low side port The following short-circuit is not detected by the drive circuit - VB short-circuit of high side port or	_	P1149	19	2798	6	x :	x
CRS S	SCV(MPROP)	Low side VB short- circuit	x	(under confirmation)	- GND short-circuit of high side port and low side port VB short-circuit on actuator low side is detected by the ECU internal IC.		-	x x		x		x	+		+		+	_	+		ECU Power OFF	- GND short-circuit of high side port and low side port VB short-circuit is not detected by the ECU internal IC.	- L	P1641	15	522571	3	x :	x

			Application model	Failure decision			Sensor default value	Falesafe action	on																Fault code				Lamp i	nformation
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration																Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI	- i	RSL AWL
								igine Stop tation Limit (1800 min ⁻¹)	station Limit (1500 min ⁻¹)	ax. Injection Amount Limit 5%)	ax. Injection Amount Limi 3%)	all Pressure Limit 3R Command Full-Close	iction Air Throttle Full-Op	ail Pressure Back-up ontrol	PF Regeneration Stop sposit Amount	alculation Stop spending on DPF	igine stop 1 ith delay time (2 hour)	igine stop 2 ith delay time (15 nutes)	illure bank injection stop	ilure cylinder injection pp	Ð			Recovery						
CRS	SCV(MPROP)	High side GND	x	Under 56kW (under confirmation)	Under 56kW GND short-circuit on actuator high side is	300[ms]	Under 56kW		ž	×	μ Ω Σ Ω	<u>х</u> ш	ดี	х	ăă	öă	Ë ≥	Ξ≤ŭ	Ц	Fa	Z	Under 56kW ECU Power OFF	Under 56kW GND short-circuit is not detected by the	duration	P1642	(HEX) 18	(DEC) 633	(DEC) 6	x	
CRS	SCV(MPROP)	short-circuit Disconnection	^	(under confirmation)	detected by the ECU internal IC. Disconnection is detected by the ECU	300[ms]	-		+	~		-										ECU Power OFF	ECU internal IC. Disconnection is not detected by the ECU	-				-	Â	<u>^</u>
CRS		It Over-pressure rail	х	Rail pressure sensor is normal operation	internal IC.	5(s)	-	x x		x		×		x								ECU Power OFF	internal IC. Rail pressure is less then 170[MPa]	-	P0627	18	633	5	×	×
	-	error	х	(No failure detection)		0(3)	-	х																-	P0088	17	157	0	x	x
CRS	Rail pressure fau	deviation error when actual pressure is too low	x	(No failure detection)	Actual rail pressure is less than target rail pressure, the difference between those pressure is more than 20[MPa]	3(S)	-	x														ECU Power OFF	Actual rail pressure is less than target rail pressure, the difference between those pressure is less than 20[MPa]	-	P0094	17	157	18	x	x
CRS	Rail pressure fau	It Rail pressure deviation error when actual pressure is too high	x	Rail pressure sensor is normal operation (No failure detection)	Actual rail pressure is more than target rail pressure, the difference in those pressure is more than 20[MPa]	5(s)	-	x														ECU Power OFF	Actual rail pressure is more than target rail pressure, the difference between those pressure is less than 20[MPa]	-	P0093	16	157	15	x	x
CRS	PLV	PLV open-valve	x	-	PLV (pressure control valve) open-valve detected	-	-	x							+							ECU Power OFF	PLV (pressure control valve) close-valve detected	-	P000F	92	157	16	x	x
The	Overspeed	Overrotation	x		When actual engine speed is more than	70[ms]		x	+			+		$\left \right $	-	-+-						ECU Power OFF	delected		P0219	17	190	16	+_+	-
others Actuator	Suction air throttle	e No-load of driving	~	(under confirmation)	Rated Speed + 300 min ⁻¹ Detection of no-load (disconnection) of H	2[s]		^	-			_			_	_					Throttle valve is	ECU Power OFF	No detection of no-load (disconnection) of		1 02 13	17	130		+	$\hat{-}$
	driven circuit	circuit	x	· · ·	bridge		-		x	x		x			x		x				full-opened by stopping energizing to the throttle	e	H bridge	-	P0660	18	2950	5	x	x
Actuator	Suction air throttle driven circuit	e Power supply short- circuit of driving output 1	x	(under confirmation)	Detection of power supply short-circuit on output plug of H bridge 1	500[ms]	-		x	x		x	x		x		x					ECU Power OFF	No detection of power supply short-circuit on output plug of H bridge 1	-	P1658	15	2950	3	x	x
Actuator	Suction air throttle driven circuit	e Power supply short- circuit of driving output 2	x	(under confirmation)	Detection of power supply short-circuit on output plug of H bridge 2	500[ms]	-		x	x		x	x		x		x					ECU Power OFF	No detection of power supply short-circuit on output plug of H bridge 2	-	P1661	15	2951	3	x	x
Actuator	Suction air throttle driven circuit	e GND short-circuit of driving output 1	х	(under confirmation)	Detection of GND short-circuit on output plug of H bridge 1	500[ms]	-		х	x		x	х		х		х					ECU Power OFF	No detection of GND short-circuit on output plug of H bridge 1	-	P1659	14	2950	4	x	x
Actuator		e GND short-circuit of driving output 2	х	(under confirmation)	Detection of GND short-circuit on output plug of H bridge 2	500[ms]	-		x	x		x	x		х		х					ECU Power OFF	No detection of GND short-circuit on output plug of H bridge 2	-	P1662	14	2951	4	x	x
Commu nication	TSC1(CAN message)	Reception message time out error	x	After 2 seconds from when key switch has been turned on ECU does not control starter Key switch is not turned off ECU power supply is more than 10V	ECU does not receive the message for TSC1	50[ms]	-														Fail safe action is applied to application menu.	ECU Power OFF	Normal communication is conducted	-	U0292	82	522596	9	x	x
	Y_ECR1(CAN message)	Reception message time out error	x	After 2 seconds from when key switch has been turned on ECU does not control starter Key switch is not turned off ECU power supply is more than 10V	ECU does not receive the message for Y_ECR1	250[ms]	-														Fail safe action is applied to application menu.	ECU Power OFF	Normal communication is conducted	-	U1292	82	522599	9	×	×
	Y_EC(CAN message)	TBD																			Fail safe action								<u>+</u> +	<u>+</u> -
													1								menu									
Commu nication	Y_RSS(CAN message)	TBD																			Fail safe action									╧┓╿
Commu	VH(CAN								-							_					menu. Fail safe action								++	\mp
nication	message)	TBD					· · · · · ·		<u> </u>	1											approation			T						
	Y_ETCP1(CAN message)	700																			menu. Fail safe action									
		TBD			1				_	1											menu			<u> </u>						
	Y_DPFIF(CAN message)	TBD															I				Fail safe action									╧┓╿
Commu	EGR	CAN1(for EGR) :		After 2 seconds from when key switch	ECU does not receive the message for	500[ms]							-	$\left \right $							menu.	ECU Power OFF	Normal communication with EGR is						++	\mp
nication	EGR	Time out error (received message) CAN1(for EGR) :	x	has been turned on After 2 seconds from when key switch	EGR	1000[ms]	-	x		x		x										ECU Power OFF	Normal communication with EGR is	-	U010B	92	522610	9	x	x
nication		Data Length Code error (received message)	x	has been turned on	EGR valve		-	x		х		x											conducted	-	U040C	92	522610	19	x	x
Actuator		Disconnection in motor coil	х	ECU judges by receiving data from EGR		0		х		х		х		\square]				ECU Power OFF	Disconnection in motor is not detected	-	P0403	92	2791	12	×	х
Actuator	LUN	Short-circuit in motor coil	х	Loo judges by receiving data from EGR	Overcurrent by short-circuit in motor coil is detected	0		x		x		x										ECU Power OFF	Overcurrent by short-circuit in motor coil is not detected	-	P1405	92	2791	12	x	х
Actuator	EGR	Position sensor fault	х	ECU judges by receiving data from EGR	Position sensor signal is over-voltage or under-voltage	0	-	x		х		х										ECU Power OFF	Position sensor signal is not over-voltage or under-voltage	-	P0488	92	2791	12	x	x
Actuator	EGR	Feedback fault	x	ECU judges by receiving data from EGR		0	-		x		x	x										ECU Power OFF	Over-duty to motor driving is not detected	-	P1409	71	2791	7	x	x
Actuator	EGR	Valve stuck open fault	x	ECU judges by receiving data from EGR	The number of step from all-open to all- close is abnormal when initializing (more than 45 steps)		-		x		x	x										ECU Power OFF	The number of step from all-open to all- close is normal when initializing (less than 45 steps)	-	P148A	71	2791	7	x	x
Actuator	EGR	Initialize fault	x	ECU judges by receiving data from EGR	Initializing process time is longer than specified	0	-	x		x		x										ECU Power OFF	Initializing process time is specified range	_	P049D	71	2791	7	x	x
Actuator	FGR	ECM data fault		ECU judges by receiving data from EGR	Instruction packet out off from ECU is	0																ECU Power OFF	Instruction packet from ECU is transmitted							
, 10104101		_o duta iduit	х	Jaagoo oy receiving data iron EGR	detected	ľ	-	х		х		х											constantly	-	U0401	82	2791	9	х	х

			Application model	Failure decision			Sensor default value	Falesa	afe action																	Fault code				Lamp	information
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration					Ŧ	Ŧ											Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI	<u> </u>	RSL AWL
								gine Stop	ation Limit (1800 min ⁻¹)	ation Limit (1500 min ⁻¹)	x. Injection Amount Limi %)	x. Injection Amount Limi %)	I Pressure Limit R Command Full-Close	ction Air Throttle Full-Op	l Pressure Back-up htrol	F Regeneration Stop posit Amount	oulation Stop culation Stop pending on DPF	gine stop 1 h delay time (2 hour)	gine stop 2 th delay time (15 lutes)	lure bank injection stop	lure cylinder injection p	Ø			Recovery						
Actuator I	GR	Out of target value		Under 56kW ECU judges by receiving data from EGR	Under 56kW Out-of-range of the target position from	0	Under 56kW	Ē	Roi	Roi	Ma (75	Ma (50	EG Rai	Su	Coal	De	Deal	μŇ	mir Mi	Fai	Fai sto	Not	Under 56kW ECU Power OFF	Under 56kW Target position from ECU is normal range	duration		(HEX)	(DEC)	(DEC)	+ ++	
Actuator I	GR	range Over-voltage fault	X	ECU judges by receiving data from EGR	ECU is detected Supply voltage to EGRV is more than 18	0	-		х		x		X	-									ECU Power OFF	Supply voltage to EGRV is less than 18 V	-	U0401	92	2791	12		X
Actuator I		Under-voltage fault	х		V for more than 5 seconds Supply voltage to EGRV is less than 8 V		-		х		х		X	_		_	\rightarrow						ECU Power OFF	Supply voltage to EGRV is more than 8 V	-	P0404	17	2791	0	X	X
Actuator I		High-temperature	х		for more than 13 seconds		-		х		x		X	-		\rightarrow	\rightarrow						ECU Power OFF	Internal high-temperature side of control	-	P0404	16	2791	1	X	X
		thermistor fault	х		unit thermistor voltage is less than 0.2 V	Č	-		х		х		X	_										unit thermistor voltage is less than 0.2 V	-	P1410	16	2791	1	x	х
Actuator I		Low-temperature thermistor fault	х	ECU judges by receiving data from EGR	unit thermistor voltage is less than 0.2 V	0	-		х		х		x										ECU Power OFF	Internal low-temperature side of control unit thermistor voltage is more than 0.2 V	-	P1411	16	2791	1	x	x
	EPROM	EEPROM memory deletion error	х	-	(under confirmation)	-	-		х		х		х										ECU Power OFF		-	P0601	92	630	12	х	х
ECU I	EPROM	EEPROM memory read error	х	-	(under confirmation)	-	-		х		х		х										ECU Power OFF		-	P160E	92	630	12	х	х
	EPROM	EEPROM memory write error	х	-	(under confirmation)	-	-		х		х		x										ECU Power OFF		-	P160F	92	630	12	х	х
1	CU internal ailure	WDA/ABE communication error	х	(under confirmation)	(under confirmation)	-	-	х															ECU Power OFF			P1607	92	522994	12	х	х
ECU I	CU internal ailure	CY146 SPI communication error	х	(under confirmation)	(under confirmation)	50[ms]	-	х															ECU Power OFF	(under confirmation)	0[ms]	P1613	92	522994	12	х	х
ECU I	CU internal ailure	CY320 SPI communication error	х	(under confirmation)	(under confirmation)	50[ms]	-	х															ECU Power OFF	(under confirmation)	0[ms]	P1615	92	522994	12	х	х
ECU I	ECU internal ailure	R2S2 MSC communication error	х	(under confirmation)	(under confirmation)	50[ms]	-	х															ECU Power OFF	(under confirmation)	0[ms]	P1616	92	522994	12	x	х
ECU I	CU internal ailure	Sensor power supply 1 voltage :	x	(under confirmation)	(under confirmation)	50[ms]	-	x															ECU Power OFF	(under confirmation)	0[ms]	P1608	92	522994	12	x	x
ECU I	CU internal	too high Sensor power		(under confirmation)	(under confirmation)	50[ms]								_			\rightarrow						ECU Power OFF	(under confirmation)	0[ms]					++	'
1	ailure	supply 1 voltage : too low	х				-	х																		P1617	92	522994	12	х	х
ECU I	CU internal ailure	Sensor power supply 1 (5 V): Voltage error	x	(under confirmation)	(under confirmation)	50[ms]	-																ECU Power OFF	(under confirmation)	0[ms]	P1609	92	522994	12	x	x
ECU I	ECU internal ailure	Sensor power supply 2 (5 V): Voltage error	x	(under confirmation)	(under confirmation)	50[ms]	-																ECU Power OFF	(under confirmation)	0[ms]	P1618	92	522994	12	x	x
ECU I	CU internal ailure	Sensor power supply 3 (5 V): Voltage error	x	(under confirmation)	(under confirmation)	50[ms]	-																ECU Power OFF	(under confirmation)	0[ms]	P1619	92	522994	12	x	x
ECU I	CU internal ailure	Internal sensor power supply: Voltage-low	x	(under confirmation)	(under confirmation)	50[ms]	-	x															ECU Power OFF	(under confirmation)	0[ms]	P1624	92	522994	12	x	x
	ECU internal ailure	Actuator driver circuit 1VB short	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P160A	15	522994	3	х	х
	CU internal ailure	Actuator driver circuit 2VB short	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P1625	15	522994	3	х	х
ECU I	CU internal ailure	Actuator driver circuit 1GND short	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P1626	14	522994	4	х	x
ECU I	CU internal ailure	Actuator driver circuit 2GND short	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P1633	14	522994	4	x	x
ECU I	CU internal ailure	ECU soft reset 1	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P160B	00	522994	11	x	x
ECU I	CU internal ailure	ECU soft reset 2	х	(under confirmation)	(under confirmation)	-	-																ECU Power OFF		-	P1636	00	522994	11	x	x
	CU internal ailure	ECU soft reset 3	х	(under confirmation)	(under confirmation)	-	-							1			+						ECU Power OFF		-	P1637	00	522994	11	x	x
	CU internal ailure	WDA/ABE shut off (Too low voltage)	x	(under confirmation)	(under confirmation)	-	-	x						1			$\neg \uparrow$					<u> </u>	ECU Power OFF		-	P160D	92	522994	12	x	x
ECU I	ECU internal ailure	WDA/ABE shut off (Too high voltage)	x	(under confirmation)	(under confirmation)	-	-	x								+	-+						ECU Power OFF		-	P1639	92	522994	12	x	x
ECU I	CU internal ailure	WDA/ABE shut off (Operation malfunction)	x	(under confirmation)	(under confirmation)	-	-	x															ECU Power OFF		-	P1640	92	522994	12	x	x
Digital / Input	Air cleaner switch	Air cleaner blockage alarm	x	- Key switch is turned on - Battery voltage is more then 9 V	Air cleaner switch is turned on	10[s]	-	(Sele ctabl		(Selecta (ble)		(Selecta ble)					(5	Selectabl e)	(Selectabl e)			Fail safe action is applied to application	ECU Power OFF	Air cleaner switch is turned off	-	P1101	17	522323	0	Xc	(Sele (Sele ctabl ctable
Digital (Input s	Dily water eparator switch	Oily water separator alarm	x	- Key switch is turned on - Battery voltage is more then 9 V	Oily water separator switch is turned on	10[s]	-	ctabi	(Selecta		(Selecta	(Selecta					(5	Selectabl e)	(Selectabl e)			Fail safe action is applied to application	ECU Power OFF	Oily water separator switch is turned off	-	P1151	17	522329	0	(5	e)) (Sele (Sele ctabl ctable
Digital (Input	Charge switch	Disconnection		- Key switch is turned on Judgement finish condition is not	Charge switch is turned off	1[s]		e)	ŕ		-	-					+		-			menu. Fail safe action is applied to	- When recovery condition consists - ECU Power OFF	Charge switch is turned off	0[s]					+	e))
			х	satisfied *Judgement finish condition : Judgement finishes when starter relay ON or engine speed is more than 45 rpm			-	(Sele ctabl e)	(Selecta ble)	(Selecta (ble)		(Selecta ble)					(S	Selectabl e)	(Selectabl e)			application menu.				P1562	0	167	5		(Sele (Sele ctabl ctable e))
Digital (Input	Charge switch	Charge failure	x	- Key switch is turned on - After engine cranking has been completed successful	Charge switch is turned on	10[s]	-	(Sele ctabl e)	(Selecta ble)	(Selecta (ble)	(Selecta ble)	(Selecta ble)					(5	Selectabl e)	(Selectabl e)			Fail safe action is applied to application menu.	When recovery condition consists	Charge switch is turned off	0[s]	P1568	16	167	1	Xc	(Sele ctabl e))
	Dil pressure witch	Disconnection		Engine speed is not reached to 45 rpm after key switch ON. Or starter is not energized after key switch ON. - Key switch is turned on - Battery voltage is more then 9 V	Oil pressure switch is turned off	1[s]	-	(Sele ctabl e)	(Selecta ble)			(Selecta ble)					(5	Selectabl e)	(Selectabl e)			Fail safe action is applied to application menu.	When recovery condition consists ECU Power OFF	Oil pressure switch is turned on	0[s]	P1192	14	100	4	x (;	(Sele (Sele ctabl ctable e))

			Application model	Failure decision		Sensor del value		lesafe acti	ion																Fault code				Lamp info	rmation
Item 1	Item 2	Fault	Under 56kW	Prerequisite condition	Detection condition	Detection duration	Fa	lesate acti	lion													Recovery timing	Recovery condition		DTC	Failure Type	SPN	FMI	i i	SL AWL
		, our	5000				origon Stool	rgine stop otation Limit (1800 min ⁻¹)	, nin	ax. Injection Amount Limit 5%)	ax. Injection Amount Limit 0%)	ail Pressure Limit GR Command Full-Close	uction Air Throttle Full-Op€	ail Pressure Back-up ontrol	PF Regeneration Stop	eposit Amount alculation Stop epending on DPF	ngine stop 1 vith delay time (2 hour)	ngine stop 2 rith delay time (15 inutes)	ailure bank injection stop	ailure cylinder injection op	ē			Recovery						- ////
Digital	Oil pressure	Oil pressure too low		Under 56kW - Key switch is turned on	Under 56kW Oil pressure switch is turned on 1[[s]	56kW ⊔		ž	ЙČ	Ű. ŭ	жы	ы N	йŏ		ı ı ı ı	₽≥	Ξ×Έ	E E	E E	ail safe action	Under 56kW ECU Power OFF	Under 56kW	duration		(HEX)	(DEC)	(DEC)	_	-
Input	switch		x	 After engine cranking has been completed successful Battery voltage is more then 9 V After "delay time of oil pressure failure detection start") "delay time of oil pressure failure detection start" is calculated based on water temperature 		-	(Si cta e	abi blo)	cta (Selecta) ble)							((Selectabl e)	(Selectabl e)			s applied to application nenu.			-	P1198	16	100	1	(Sel X ctat e)	ele (Sele bl ctable))
tment control	temperature sensor	iate Low temperature	x	Exhaust temperature sensor is normal operation DPF inlet temperature sensor is norma operation DPF intermediate temperature sensor is normal operation	1200s	200[s] -		x		x		x			x							ECU Power OFF	ECU power-off with self-hold	-	P0420	0	3250	1	x	x
Aftertrea tment control	DPF	Over PM accumulation (C method)	x	After engine cranking has been completed successful PM accumulation (C method) failure correction is not operated	PM accumulation by C method is more 30 than 12g/L, then Stationary Regeneration Request Flag is "3"	00[ms] -																When recovery condition consists	Stationary Regeneration Request Flag is not "3"	0[s]	P2463	0	522573	0		
Aftertrea tment control	DPF	Over PM accumulation (P method)	x	 After engine cranking has been completed successful PM accumulation (P method) calculation stop is not operated 	PM accumulation by P method is more 30 than 12g/L, then Stationary Regeneration Request Flag is "3"	00[ms] -																When recovery condition consists	Stationary Regeneration Request Flag is not "3"	0[s]	P1463	0	522574	0		
Aftertrea tment control		Regeneration defect (Stationary regeneration failed)	x	-	Stationary regeneration is not completed 0[within the regular time, then Stationary Regeneration Request Flag is "3"	[s] -																When recovery condition consists	Stationary Regeneration Request Flag is not "3"	0[s]	P2458	0	522575	7		
Aftertrea tment control	DPF	Regeneration defect (Stationary regeneration not operated)	x	-	Stationary regeneration is not operated 0[within the regular time though stationary regeneration is requested, then Stationary Regeneration Request Flag is "3"	[s] -																When recovery condition consists	Stationary Regeneration Request Flag is not "3"	0[s]	P2459	0	522577	11		
Aftertrea tment control	DPF	Maintenance (Maintenance is not conducted during the regular time)	x	All of the following sensor is normal operation - DPF differential pressure sensor - DPF high-pressure side sensor - Ambient pressure sensor - Fuel temperature sensor - EGR high-pressure side sensor - EGR high-pressure side sensor - Intake air temperature sensor - Fresh air temperature sensor - EGR gas temperature sensor - EGR agas temperature sensor - EAR agas temperature sensor - Water temperature sensor - DPF intermediate temperature sensor - DPF intermediate temperature sensor	All of the following condition is satisfied - After engine cranking has been completed successful - Engine speed is more then 1800 min-1 - After 300 seconds from when PM reset condition consists - Before 900 seconds from when PM reset condition consists - DPF differential pressure is more than the threshold A *the threshold A is calculated by MAP	- -		x		x		x						х				ECU Power OFF	ECU Power OFF	-	P1437	0	3251	16	x x	
tment	DPF operator interface	request 1	x	-	Ash accumulation is more than 50 g/L, 0[then Ash Cleaning Request Flag is "1"	[s] -																When recovery condition consists	Ash Cleaning Request Flag is not "1"	0[s]	P242F	0	3720	16	x	x
control Aftertrea tment control Aftertrea	DPF operator interface	request 2	х	-	Ash accumulation is more than 60 g/L, 0[then Ash Cleaning Request Flag is "2"	[S] -		x										х				When recovery condition consists	Ash Cleaning Request Flag is not "2"	0[s]	P1420	0	3720	0	x x	
tment control	DPF operator interface	Stationary regeneration standby	x		Stationary regeneration mode is O[requested by except SW or CAN operation, then Stationary Regeneration Request Flag is "2" and - Stationary regeneration is not operated	-																When recovery condition consists	- Stationary Regeneration Request Flag is not "2" or - Stationary regeneration is operated	0[5]	P1421	0	3719	16	x	x
Aftertrea tment control	DPF operator interface	BackUp mode	x	-	- BackUp mode is operated, then 0[Stationary Regeneration Request Flag is "3"	-		x			x	x						x				When recovery condition consists	- Stationary Regeneration Request Flag is not "3" or - Stationary regeneration is operated	0[s]	P1424	0	3719	0	x x	
Aftertrea tment control	DPF operator interface	Reset regeneration inhibit	x	-	Reset regeneration is operated, then 0[DPF Regeneration Mode Flag is "2" and - DPF regeneration inhibit switch is turned off (Disable)	-																When recovery condition consists	- DPF Regeneration Mode Flag is not "2" or - DPF regeneration inhibit switch is not turned off (Enable)	0[s]	-	-	-	-		
tment	DPF inlet temperature	High temperature	х	DPF inlet temperature sensor is normal operation	DPF inlet temperature is more then 700 15 degC	5[s] -				х												ECU Power OFF	DPF inlet temperature is less then 680 degC	-	P1436	0	3242	0	х	x
control Aftertrea tment control	sensor DPF differentia pressure sensor	al High differential pressure	x	- DPF differential pressure sensor is normal operation - After engine cranking has been completed successful	DPF differential pressure is more than 50 18 kPa	5[s]		x		x		x			x			x				ECU Power OFF	ECU Power OFF	-	P2452	0	3251	0	x x	
Aftertrea tment control	DPF intermedi temperature sensor	iate High temperature	x	- Regeneration(Post injection) is operated - DPF intermediate temperature sensor is normal operation	DPF intermediate temperature is more 11 than 700 degC	5[8]		x		x		x			x			x				ECU Power OFF	DPF intermediate temperature is less than 650 degC	-	P1426	0	3250	0	x x	